

SUSTAINABILITY ANALYSIS: VISITORS IMPACT ON TAMAN NEGARA, PAHANG, MALAYSIA

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ABSTRACT

The aim of this research paper is to measure the sustainability of the Taman Negara (National Park) using the Visitors Impact Management (VIM) approach from the visitors' perspectives on environmental impacts and the management of the Park. VIM aims to reduce or control the impacts that threaten the quality of outdoor recreation and tourism areas and experiences. The objectives of the study are to assess the impact of domestic and international visitors, to identify visitor's experiences and opinions on the park activities and facilities and recommend and improve the potential management actions and develop strategic planning for developing and sustaining Taman Negara. A total of 313 international tourists were surveyed and asked to indicate their perceptions and experiences during their visit and the types of activities in which they participated in Taman Negara. Researchers carried out personal interviews with the park officials and a field survey was conducted in April and October 2007 and March 2008. The analysis reveals that the visitors enjoyed their experiences on a canopy walkway, jungle trekking and hiking, night jungle walks, cave exploration, a visit to an aborigine settlement and rapid shooting. Their main concerns were the natural environmental conditions, especially the damage to the park due to too many people, soil erosion, littering, provocation of wildlife and vegetation damage along walk trails. Visitors supported park management in limiting the number of visitors, the number of people in a group and better educating visitors about conservation. They agreed that the staff at the park should provide more information on the park through brochures and assist the visitors.

Keywords: visitors impact management, tourist, sustainability, perception, experience

INTRODUCTION

Sustainable tourism in its purest sense is an industry committed to making a low impact on the natural environment and local culture, while helping to generate income and employment for locals. Tourism is the world's largest and fastest growing industry and this growth will create a stressful situation especially for

the remaining biologically diverse habitats and indigenous cultures, which are often used to support mass tourism. Tourists who promote sustainable tourism are sensitive to these dangers and seek to protect tourist destinations and the impact of tourism can be reduced by informing them of the culture, politics and economy of the communities visited, by respecting and understanding the local cultures, conserving the cultural heritage and traditional values, supporting the local businesses and conserving resources. The question is: Who is responsible for protecting the environment in the tourist destination? The answer is that everyone involved in tourism – government, product owners and operators, transport operators, community services, NGOs, tourists, local communities, industry associations – are responsible for achieving the goals of sustainable tourism. Businesses and other stakeholders anticipate development pressures and apply limits and management techniques that sustain natural habitats, heritage sites, scenic appeal and local culture.

This study focused on the sustainability of Taman Negara situated in Pahang, as a tourist destination. Taman Negara National Park was established in Malaysia in 1938/1939 as the King George V National Park. It was renamed Taman Negara after independence and is a significant geographical feature in Peninsular Malaysia. Owing to the importance of creating sustainable tourism development in Taman Negara, the aim of this research paper was to measure the sustainability of Taman Negara (National Park) from the Visitors Impact Management (VIM) approach from the visitors' perspectives on environmental impacts and the management of the Park. The objectives of the study are:

- i. To assess the impact of visitors focusing on domestic and international tourists visiting Taman Negara
- ii. To identify visitors' experiences and opinions on the recreational activities and facilities offered by Taman Negara.
- iii. To recommend and improve the potential management actions and develop strategic planning for the development and sustaining of Taman Negara.

LITERATURE REVIEW

Tourism has long been recognized as fitting well with the ideals of sustainable development as it is an activity and industry which relies on the maintenance of a strong and healthy environment for its long-term well being in many areas. It is not surprising that sustainable development has gained the attention of tourism researchers (France, 1997; Wahab and Pigram, 1997; Hall and Lew, 1998; Middleton and Hawkins, 1998; Mowforth and Munt, 1998) because as a concept it addresses concerns over the abuse and over-use of resources, embraces principles of sensible and common sense environmental management and recognizes the need for change, that are the key elements of tourism planning, development and

management (Nelson *et al.*, 1993; Butler and Pearce, 1996; Wall, 1997; Butler, 1999).

In the 1960s, research on visitor impact became more important with the growing management concerns over increased visitation. A recent stage of concern in visitor impact research is related to the rapid growth of ecotourism and concomitant concerns about impacts at previous ecotourism destinations, which often fall within heritage sites and national parks (Newsome *et al.*, 2001; Buckley 2004). Knight and Gutzwiller 1995). Some studies focused on developing impact assessment and monitoring procedures (Liddle 1997; Hammitt and Cole 1998). The Visitor Impact Management (VIM) approach assesses the impacts of visitors on a resource and recreation experience. It involves the systematic collection of data to predict the impacts of differing management strategies, and the collection of management information on the desirability of identified alternatives. VIM uses a sequential process, which aims to reduce or control the impacts that threaten the quality of outdoor recreation and tourism areas and experiences (Hall and Lew, 1998). The two elements required are descriptions of the relationships between specific conditions of use and the impacts associated with these conditions, and evaluation of the acceptability of various impacts. VIM can be integrated with other planning frameworks, or used as a management tool for a specific local impact problem. It may also be adapted for use in situations of mass tourism and in urban areas. Graefe *et al.* (1990) suggested that visitor management may be direct (regulating or restricting visitor activities) or indirect (influencing visitor behaviour).

Visitor Management Strategies

Indirect	Direct
Physical alteration	Enforcement
Information dispersal	Zoning
Economic constraints	Rationing use intensity
	Restricting activities

Sources: Graefe *et al.* 1990.

Visitor impacts are an important parameter in the ecotourism equation as they tend to compromise the conservation guidelines or principles of ecotourism (Wood, 2002). If unchecked, these impacts could degrade the resource quality of ecotourism destinations and have concomitant social and economic consequences. For many protected areas in developing countries, unfortunately, visitor impacts are not a high priority compared to other management concerns (Leung and Farrell, 2002). Visitor impact knowledge must be grounded in science. The field of recreation ecology has been generating a body of scientific literature that has enhanced our understanding of visitor impacts and their management (Liddle, 1997; Marion and Farrell 1998; Cole 2000; Leung and Marion 2000). It is widely recognized that both the environmental conditions of natural areas and the quality

of the ecotourist experiences are influenced not only by the number of visitor per se, but by the impacts those users have on the ecological and social conditions (Prosser, 1986). In this way, visitors are at the centre of ecotourism management: they have impacts on the natural environment and the tourism experience, while the quality of the experience is affected by the management actions necessary to improve those impacts. Hence, users represent a valuable resource for gaining information about the presence and extent of impacts, the acceptability of environmental change, and the consequences of management actions for their experience.

The centrality of visitors is embodied in the approach taken by the Visitor Impact Management (VIM) planning framework, which explicitly recognizes the value of both judgmental and scientific considerations for effective management of natural areas (Graefe et al., 1990). This recognition means that identifying the significance of biophysical and social impacts is necessarily value-laden, and as such, natural area planning and management must be recognized as a sociopolitical process (Morin et al., 1997). Therefore, rather than relying on technical assessment to determine carrying capacity and use-limits - an approach that has proved unworkable in addressing resource management problems (McCool, 1989; Lindberg et al., 1997) – the VIM approach is based on the principle that both environment and the quality of the recreation experience are complex, and are influenced by a number of successive stages: reviewing the database (identifying unacceptable visitor impacts); reviewing management objectives; identifying measurable indicators; selecting standards for indicators; assessing current conditions of impact indicators; identifying probable causes of impacts; identifying a range of alternative management strategies; and implementing selected strategies (Graefe et al., 1990).

METHODOLOGY

This study undertakes two phases, firstly a preliminary meeting and discussion with the Perhilitan officials on the management strategies and sustainability of Taman Negara. Open-ended questions were developed for personal interviews by researchers to obtain in-depth information on management strategies, travelling packages, nature guiding and various services offered at the Park. The second phases, was a field survey using questionnaires to gather sufficient data from visitors to Taman Negara Pahang. The questionnaire comprised three sections, namely visitor characteristics; activities undertaken and visitor perceptions of the park. A personal interview was conducted by five interviewees at various locations of the park such as accommodation areas, restaurants and park activity areas, for ten days in April and October 2007, and seven days in March 2008. A total of 313 questionnaires were collected from respondents comprising international and domestic visitors during the field survey. The assumption underlying all aspects of this study is that information from visitors

is essential to successful planning and management of natural areas that aim to sustain ecotourism.

DISCUSSION OF FINDINGS

The answers obtained from personal interviews with the key informants from the Perhilitan department agreed strongly that the management of the park requires a rethinking of their strategies and regulating of certain important areas such as limiting the number of people visiting the park, providing information and educating the visitors for better understanding of the natural environment areas as well as limiting access to areas to avoid erosion and vegetation damages. The monitoring and controlling of the recreational activities such as the canopy walk, cave exploration and the aborigine settlement are essential for the safety of visitors, privacy and to ensure quality visitors' experiences.

The field survey shows a total number of 313 respondents comprising international visitors mainly from the Netherlands (15%), followed by Singapore (8%), Germany (7%), Spain (5%), Thailand (5%) and England (5%). Others are from Australia, Switzerland, United States of America, Austria and France. A total of 19% of domestic visitors were interviewed. Males and females were equally represented within the sample surveyed. The majority of the visitors were between 30-39 years of age (41%) and 20-29 years of age (40%) with not many aged 60 and above (1%). This is supported by other studies conducted in Bako National Park (Chin et. Al, 2000) and America (Lucas, 1990) that indicates the younger generation dominate the visitors to the wilderness and adventures of the park and were aged between 16-40 years. As most visitors are from abroad, 70% of the respondents stayed longer in the Taman Negara; three days and two nights and only 1% came for a day trip. Similarly to the Bako National Park study (Chin et al, 2000), the visitors of a distant origin tend to stay longer while local visitors are day trippers. Most respondents travelled with their friends (36%) and 24% visited the park with their spouses and others respectively. Only 6% of the respondents travelled with their family/relatives. In occupation, most visitors were professionals with 38%, followed by students with 19%, and clerical or supervisory and retired people had the same percentage of 4% and the lowest was that of housewife (1%). A total of 95% were the first time visitors and 5% repeat visitors to the park.

Many recreational activities are available in Taman Negara and the most popular activities participated in by most visitors during their stay are the canopy walk (91%), jungle trekking (49%), followed by night jungle walks (47%), climbing Bukit Teresek (23%) a visit to the aborigine settlement (21%) and cave exploration (21%). Table 1 shows the various activities participated in by the visitors.

Table 1: Activities Participated in by Visitors to Taman Negara

	Yes	No
Canopy walkway	91.1	8.9
Night jungle walks	47.3	52.7
Wildlife observation hides	8.9	91.1
Cave exploration	20.5	79.5
White water rafting	5.4	94.6
Bukit Teresek	23.2	76.8
Lata Berkoh	15.2	84.8
Nature trails	17.0	83.0
Jungle trekking & hiking	49.1	50.9
Mountain climbing	4.5	95.5
Visit to Aborigine Settlement	20.5	79.5
Fishing	2.7	97.3
Rapid shooting	19.6	80.4
Four steps wall	2.7	97.3
Jet Boat Cruise	8.9	91.1

The visitors felt that the activities that are close to nature, encounters with wildlife, learning about nature, viewing the scenery and breaking from routine are fairly important since all the measures of the central tendency are towards the scale of 4 (important). However, activities that are private and solitary are neutral. The study by Chin et al (2000) also indicated that being close to nature, encountering wildlife, learning about nature and viewing the scenery were very/ extremely important in the activities undertaken at Bako National Park, similarly viewing wildlife was also an important activity in the Tangkoko DuaSadara Nature Reserve (Kinnaird & O'Brien, 1996). Most researchers agreed that these activities are highly dependent on the quality of the natural environment of the Park (Chin et al 2000; Kinnaird & O'Brien, 1996). Many respondents got to know about Taman Negara Pahang through travel agents or tour operators. However, none of the respondents received the information through direct mail. Only 2% of the respondents were aware of Taman Negara Pahang from previous visits (see Table 2).

Table 2: How visitors' know about Taman Negara

	Yes	No
Local newspaper / magazine	4.4	95.6
Brochure	15.2	84.8
Travel agent / Tour operator	32.1	67.9
Internet	25.9	74.1
Friends / Relatives	20.5	79.5
Direct Mail	0	100
Previous Visits	1.8	98.2

Visitor perceptions

Visitor perceptions of the impacts most frequently observed by visitors in Taman Negara are: too many people (64%), the social impact that leads to biophysical impacts such as soil erosion at walk trails/forest floor (43%), litter on walk-trails (41%), litter (34%) and soil erosion (30%). The least percentage on impact observed are vegetation damage along walk trails, litter at the aborigine settlement, smelly and discoloured water, provocation of wildlife, water logging along some trails, wildlife attracted to rubbish bins and hiking away from walking trails. Figure 1 shows the percentages of visitors' perceptions of the impacts on Taman Negara. The management of Taman Negara should be aware of the observed impacts as visitors' recreational activities can damage the natural environment of the park.

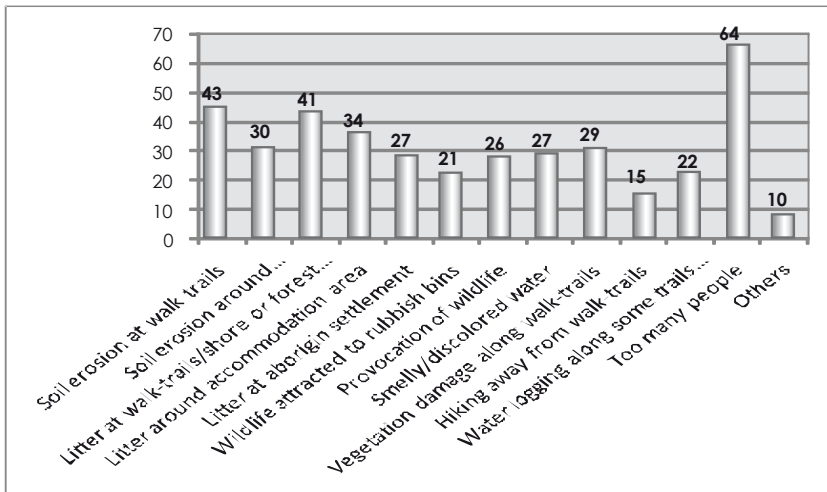


Figure 1: Impacts of Taman Negara observed by Visitors

A greater number of the respondents expressed concern about the potential impacts than the observed impacts. Statistical analysis using z-test indicated statistically significant increases at the 1% level for most impacts (Table 3).

Table 3: Visitor perceptions of observed and potential environmental impacts in Taman Negara Pahang

Impact	Observed	Potential	Comparison: observed and potential
	Percentage of respondents		Significance (p)
Too many people	64	68	<0.01
Soil erosion on walk-trails	47	57	<0.05
Litter on walk-trails or forest floor	41	57	<0.01
Litter around accommodation areas	38	49	<0.05
Soil erosion around accommodation areas	30	44	<0.01
Vegetation damage along walk-trail	29	44	<0.05
Smelly /discoloured water	27	32.	<0.05
Provocation of wildlife	26	44	<0.01
Water logging along some trails	22	38	<0.01
Litter at aborigine settlement	27	41	<0.01
Wildlife attracted to rubbish bins	21	44	<0.01
Hiking away from walk-trails	15	31	<0.01

In particular, hiking away from walk trails, provocation of wildlife, wildlife attracted to rubbish bins represent a potential impact by about double the proportion of visitors that had observed the impact. Differences between several other observed and potential impacts, namely soil erosion on walk-trails, litter around accommodation areas, vegetation damage along walk-trails and smelly/discoloured water, were statistically significant at the 5% level. These results suggest that the visitors believe that the environmental conditions are likely to worsen in the future if the management does not take immediate action and solve the problem identified in the observed impacts within the park. The park management should be concerned with the biophysical impact caused by the number of visitors coming to the park and the recreational activities in which they participated. According to Chin et. al (2000), results from visitor perceptions of the impacts of visitor use can be taken into consideration to identify potential indicators for monitoring environmental conditions in the National Park. This approach is based on the premise that the best indicators are the conditions of most importance to visitors. As such, litter, erosion along walk-trails and damage to natural vegetation are potentially suitable indicators. These indicators are measurable allowing standards to be selected and measured by managers (Step 4 of the VIM process).

Environmental Conditions/Concern in Taman Negara

The study examines the seriousness of the environmental conditions/concern in Taman Negara in relation to the surrounding areas, vegetation, wildlife, numbers of visitors, transportation, safety of visitors and maintenance of the facilities in the park. Table 4 shows that the major problems are the number of people encountered overall, the health/condition of wildlife and the size of groups encountered and serious problems are litter around the park, the number of people encountered overall and damage to the natural park.

Table 4: The visitors' level of agreement on the level of environmental conditions or concern in Taman Negara Pahang

Concern	Major Problem	Serious Problem	Slight Problem	No Problem	No response/ Neutral
Percentage of respondents					
Number of people encountered overall	14	32	9	4	36
Litter around park	7	38	18	10	28
Damage to natural park	9	28	19	11	35
Health/condition of wildlife	13	20	9	12	43
Size of groups encountered	11	20	24	11	35
Number of human-made structures	5	25	21	11	38
Erosion along walk-trails	4	26	20	7	41
Safety of visitors	2	21	23	17	35
Comfortable transportation used	2	18	23	21	34
Maintenance of Recreational Facilities	2	17	23	8	

Support of the management action in Taman

The visitors strongly agreed with supporting the management on various activities such as educating visitors more about conservation through ecotourism activities, providing more maps and signage at different points for directions, limiting the overall number of visitors, limiting the use of the forest area and limiting the number of people per group. Visitors also suggested that the management should provide more staff/rangers to assist visitors in the park. Studies by Chin et. al. (2000) on Bako National Park and Morin et al., (1997) on the park in Western Australia indicated that all management strategies are fully supported such as on limiting forest use, limiting the number of people and educating the visitors.

The majority of the respondents stated that they would recommend that their friends visit Taman Negara, however they are unlikely to be or are unsure about coming back to Taman Negara as the results show a mean score of 2.83

CONCLUSION & RECOMMENDATION

The views and preferences of visitors to Taman Negara enable the identification of impacts perceived as significant by eco tourists. It is essential to minimize the environmental impacts of the park through a combination of effective planning and regulations, as well as educational training for staff or rangers to assist in the park. The study provides the foundation of a comprehensive framework in managing visitors and recreational activities while sustaining the natural environment. It is recommended that the management of Taman Negara assess the possible environmental degradation and carrying capacity to control the number of tourists enjoying the ecotourism activities with regard to protecting the animals and other wildlife in the surrounding area. The formation of vertical integration among tourism companies is important so as to ensure a greater control over the marketing of Taman Negara as an ecotourism holiday destination.

In order to avoid congestion in Taman Negara, the management should follow the guideline proposed by the United Nation World Tourism Organisation on the Tourism Congestion Management at Natural and Cultural Sites. The park management can introduce and monitor a chart of activities to minimize congestion and apply the integrated approach to congestion management through demand, destination and site management. The park management should establish the visitor impact monitoring programs such as the use of limits of acceptable change (LAC) models in order to review the progress in visitor impact monitoring, evaluate challenges and barriers and explore appropriate methodology that can be applied to manage Taman Negara in most sustainable ways. Others include regular meetings with travel agencies and tourist guides in providing sufficient information to visitors, managing the movement of the visitors at the park and frequent training of key park personnel. Revenue from park entrance fees and other penalty fees imposed on visitors can contribute to the maintenance of the park and protection of the habitat in the park. Lastly, the management needs to establish a program for monitoring and reviewing the successes or failures of the recreational activities to ensure the least damage to the natural environment and local communities surrounding the park.

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